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Perspective

Dental students' perception on the entire online courses of domiciliary dentistry and dysphagia curricula during the COVID-19 pandemic

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In Taiwan, the population of people aged 65 years and over will be >20% of the total population by the year 2025.¹ Elderly people are prone to have chronic illness, functional impairment, or swallowing problems that may lead to reduced mobility or aspiration pneumonia. Data have shown that ~3% of the elderly in Taiwan by September 2021 had a severe or profound disability.² Data also demonstrated that pneumonia is the third leading cause of death among the elderly in 2019, and the mortality rate increases in the higher aged group.³ Therefore, the provision of comprehensive dental care for the elderly is essential for the rapidly aging society in Taiwan. The implementation of the geriatric curriculum in dental education is a way to enhance the knowledge of healthcare providers on caring for the elderly.

The School of Dentistry, Chung Shan Medical University, developed Domiciliary Dentistry and Dysphagia curricula for fourth-year dental students in 2017. Both curricula were one-credit, required courses. There is currently no similar curriculum in other dental schools in Taiwan. The curricula

were delivered by hybrid teaching with online lectures and traditional physical classes in the past four years. However, during the COVID-19 pandemic, a physical class is often replaced with online lectures to prevent the spread of the epidemic. Previous studies have proposed several alternative teaching or learning methods in dentistry during the pandemic.^{4–6} In the most recent semester, I established an entire online video learning course consisting of lectures and hands-on practice for the two curricula. All the lecture notes and videos, including two episodes of hands-on practice, were available at the online platform of the Chung Shan Medical University.^{7,8} For the Domiciliary Dentistry course, hands-on practice included using oral hygiene instruments like toothbrushes, toothbrushes equipped with suction tubes, Y-type dental flosses, tongue brushes, mouth props, and oral sponge brushes. For the Dysphagia course, the video demonstrated the practice of oral diadochokinesis, tongue pressure measuring devices, and tongue exercise devices. Further, students were assigned to write down their learning notes for selected videos and submit them to the teacher at the end of the semester to strengthen the learning outcome of the entire online course. After completing the course and final examination, a survey was conducted for the dental students' satisfaction with the entire online course. According to the results of this survey, the satisfaction rates were

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Table 1 Dental students' response to different teaching methods on the domiciliary dentistry and dysphagia curricula.

Question: Which of the following teaching modes do you prefer for the domiciliary dentistry and dysphagia curricula?

Items	Number of responses ^a (%)
Entire online course	22 (27)
Entire online lectures with physical practice	39 (49)
Physical lecture and practice	3 (4)
Online lecture, invited keynote lecture, and physical practice	12 (15)
No comments	4 (5)
Total	80 (100)

^a Response rate: 100% (80/80).

99%, 95%, and 100% for online teaching videos, online videos on hands-on practice, and the overall online course, respectively. Besides, 49% (39/80) responses favored the total online lecture with physical practice, followed by 27% (22/80) for the entire online course (Table 1).

Students were assigned to submit their learning notes in handwriting to enhance learning efficacy. Two students mentioned that handwriting helped them systematically outline and organize the lectures. One student suggested providing a learning checklist to strengthen their learning quality. These were important feedback to improve learning efficacy of the entire online course.

The COVID-19 pandemic has lasted for two years and seems to be far from over. This has a pivotal impact on education patterns, with a paradigm shift from physical lectures to online learning. Although it is not easy to deliver an operational course through e-learning, it is necessary during a severe epidemic. A high-level opaque projector (rather than a webcam) is needed to achieve high-quality images of the operational videos. I choose IPEVO V4K Pro (IPEVO Company, Taipei, Taiwan) as an online demonstration tool for its relatively low cost and freedom of access. Although only one student specified a minor problem of the object focus, I recommended a higher-level projector, the IPEVO VZ-R HDMI/USB Dual Mode Visualizer, for better image quality.

Despite positive feedback on the entire online course from the students, 49% of them favored the total online lecture with physical practice. Physical practice teaching is mandatory for effective clinical skill learning whenever

possible. Therefore, improving the learning efficacy for clinical skills and developing a well-constructed hybrid teaching method that includes physical and online learning in Taiwan's dental education is necessary during the COVID-19 pandemic.

Declaration of competing interest

The author has no conflicts of interest relevant to this article.

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